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Fourth Generation of Mobile Communications Standards

Wireless technologies are playing a key role in providing broadband access in rural areas. It is more cost-effective to build one station 4G, which will provide a link to a distance of tens of kilometers, covering farmland than a blanket of fiber optic lines. Like with the standard 3G, ITU took over 4G, linking it to the specification has known as IMT-Advanced. The document calls for the incoming data rate of 1 Gbit / s for stationary terminals and 100 Mbit / s for mobile. It is 500 and 250 times faster compared to IMT-2000. This is a really great speed that can outrun ordinary DSL-modem or a direct connection to broadband.

Unfortunately, these specifications are so aggressive that no commercial standard in the world meet them. Historically, WiMAX and Long-Term Evolution (LTE), designed to achieve the same success as CDMA2000 and GSM, are considered fourth generation technologies, but this is only partly true: they both use a new, highly efficient multiplexing schemes (OFDMA, in Unlike the old CDMA or TDMA used in the last twenty years), and in both of them there is no channel for voice. 100 percent of their capacity is used for data services. This means that the voice will be considered as VoIP. Given how much of today's mobile society is focused on the transfer of data, we can consider this a good solution. Where WiMAX and LTE are failing, it is in the data rate, they have these values are theoretically at 40 Mbit / s and 100 Mbit / s, and in practice the actual speed of commercial networks do not exceed 4 Mbit / s and 30 Mbit / s respectively, which in itself is very good, but does not meet the high goals of IMT-Advanced.

Recently US operator T-Mobile has decided to start branding upgrade to HSPA + 4G. In principle, this step makes sense: 3G technology could eventually reach speeds greater than LTE, closer to the requirements of IMT-Advanced. They continue to use their 3G frequencies for voice and will make it back in for a while. In addition, T-Mobile is going to upgrade to a speed 42 Mbit / s this year, even without LTE. Perhaps this step T-Mobile caused global rethinking of what it really means «4G» buyers of mobile phones. AT & T, which is in the process of migrating to HSPA + and LTE will offer in some markets at the end of this year, calls both of these networks 4G. Thus, all four national U.S. carriers have stolen the name «4G» at ITU - they get it, ran with it and changed it.

However, it can be argued that the original standards WiMAX and LTE are quite different from the classic standards of 3G, so you can talk about the change of generations. In fact, most carriers around the world that have deployed such networks call them 4G. Obviously, it is used as marketing and business ITU has no power to oppose. Both technologies (LTE in particular) will soon be deployed in many operators around the world over the next few years, and the use of the name «4G» will only grow.